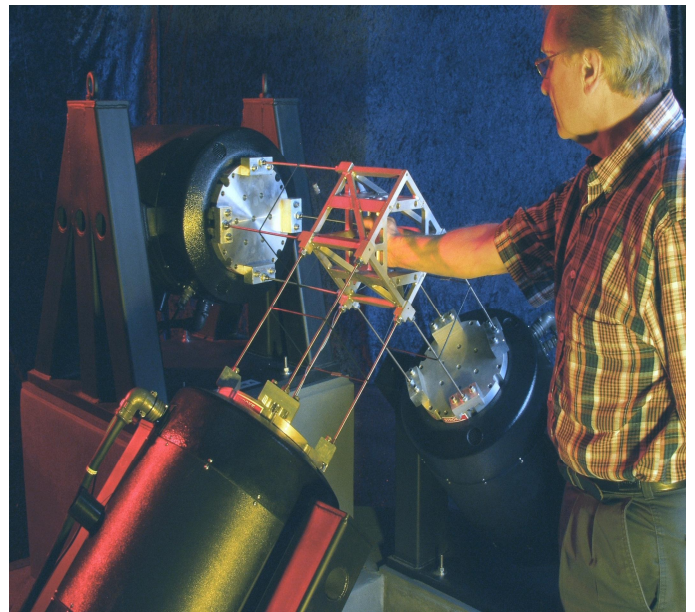




MB Dynamics 3D-HTV Simulator

3-Axis Hand-Transmitted Vibration Simulator

- ❖ Simulate multi-axial workplace vibration from hand tools such as rock drills, road breakers, chipping hammers, and grinders
- ❖ Set goals and evaluate counter-measures to reduce this vibration
- ❖ Understand mechanisms of hand-arm vibration syndrome (HAVS)
- ❖ Objectively diagnose HAVS
- ❖ Assess worker risk, understand vibration exposure and dose-response relationships, and validate thresholds in directives
- ❖ Do 3-D research into biodynamic responses of hand-arm systems



SPECIFICATIONS: 3-D HAND-TRANSMITTED VIBRATION SIMULATOR

- ❖ Simulates 3 translational directions of tool vibration, simultaneously
- ❖ More realistic simulation of different measured spectra in each direction from actual tools
- ❖ 3-D better replicates real-world health effects
- ❖ Frequency response: 7.5 Hz to 1,000 Hz
- ❖ 100 m/s² RMS random vibration for each axis
- ❖ 150 m/s² peak sine vibration for each axis
- ❖ Vibration displacement ≥ 12.7mm peak-to-peak, each direction simultaneously
- ❖ Operate 1-axis, 2-axes or all 3-axes at a time
- ❖ Produces translational vibrations with minimal rotational vibration response
- ❖ Equipment resists feed forces up to 150N
- ❖ Operating noise levels are <60 dBA, typically, so audible noises don't annoy or fatigue subject
- ❖ Shaker armature suspension protects against damage from off-axis vibration and feed forces
- ❖ Multi-Input, Multi-Output closed-loop control, each axis:
 - PSD broadband & constant velocity random
 - Tool acceleration time histories
 - Sine vibration
 - Different vibration profiles on each axis
 - Minimal vibration contamination, cross-coupling on one axis from others
- ❖ NIOSH-designed and validated instrumented handle is linear, stiff and acceptable for biodynamic response measurements ≤ 1,500 Hz
- ❖ Handle at proper ergonomic height
- ❖ Fixture for handle and stinger-to-shaker attachments are stiff to generate forces yet flexible to allow 12mm displacement
- ❖ CE Mark



NIOSH Instrumented Handle

MB Dynamics MIMO Controller

